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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/724,219	12/01/2003	Soon Bog Kwon	2832-0166P	9828

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EXAMINER

LAM, CATHY FONG FONG

ART UNIT	PAPER NUMBER
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1775

DATE MAILED: 03/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/724,219

Applicant(s)

KWON ET AL.

Examiner

Cathy Lam

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2 and 4-13 is/are rejected.
- 7) ☒ Claim(s) 3 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on December 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

In respond to the Petition filed on February 01, 2006 regarding the request for withdrawal of restriction requirement. This is a supplemental office action replacing the previous office action mailed on January 26, 2006. The period for responds is set to expired 3 months from the mailing date of this office action.

Drawings

1. New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because Figs. 1 & 3 need to be drawn larger for clarity. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claim is vague and indefinite, as it is unclear how "pore density" in any way relates to "surface area"? Clarification is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 2, 5-6, 9 and 13 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Hisanori et al (JP 2002-289653).

Hisanori discloses a tape carrier comprised of a substrate (1), a copper foil wiring pattern (3), a noble metal plated layer (10), a pure tin layer (4) and a tin-copper alloy layer (5); all in the named order.

The noble metal plated layer (10) is a noble metal such as silver, gold or palladium, etc. is formed onto the copper foil wiring pattern (3), it has a thickness of 0.01-0.1 μm [¶ 0019 & ¶ 0023].

A pure tin layer (4) of about 0.5 μm and a tin-copper alloy layer (5) in the thickness of about 0.15-0.2 μm , are respectively formed over the noble metal plated layer (10) [¶ 0027].

The prior art mentions about "pinholes" in the noble-metal plating layer [¶ 0023]. The examiner is taking the position that "pinholes" is the same as the pores in the layer, thus the noble metal plating layer includes pores.

Hisanori discloses a method of fabricating a tape carrier. The steps comprised of forming a copper foil pattern (3) onto an insulating film (1) through an adhesive (2). A noble metal is plated onto a terminal area (or connection area) of the copper pattern. A thinning layer (ie. a Sn-Cu alloy layer and a pure tin layer) is further formed over the terminal area (page 2 ¶ 0012).

A solder resist is applied to an area except for the terminal area of the circuit pattern after the noble metal plating step and before the plating of the tinning layer (page 2 ¶ 0014). A heat treatment is performed onto the tinning layer.

The examiner is taking the position that the noble metal in the prior art resembles the barrier layer of the present invention.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 4, 7-8 and 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hisanori et al (JP 2002-289653).

Hisanori discloses a method of making a tape carrier.

The method comprising the steps of plating a copper foil over a substrate, followed by a noble metal layer is plated over the copper foil, to define a terminal area. A solder resist is formed over the noble metal layer except the terminal area (or connection area). Then, a tinning layer is formed over the terminal area (page 2 ¶ 0012). A heat treating step is performed to the tinning layer (page 2 ¶ 0014).

Hisanori teaches the similar method steps of claims 7 and 11, with the solder resist being formed on part of the noble metal layer (or barrier layer). Claim 7 calls for the solder resist is formed onto part of the copper foil and claim 11 calls for the solder resist is formed onto part of the tin layer, before the heat treating step.

In view of the prior art teaching, one skill in the art would choose a desired arrangement order because it is a matter of design choice. Furthermore, it would also

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be obvious that the heat-treating step in the prior art would cause the tin layer and the barrier layer to melt and form an alloy layer because tin is known to be used in solder which has a low melting temperature. One skill in the art can easily make the barrier layer and the tin layer to form an alloy layer by choosing the right temperature and the duration of heating time.

Allowable Subject Matter

5. Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if incorporate into the independent claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cathy Lam whose telephone number is (571) 272-1538. The examiner can normally be reached on 9am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on (571) 272-1284. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Cathy Lam
Primary Examiner
Art Unit 1775